

THE FIRST RECORDS OF THE FAMILIES OCHTERIDAE AND
HEBRIDAE (HETEROPTERA) FROM THE GRANITIC
SEYCHELLES, WITH DESCRIPTIONS OF
TWO NEW SPECIES

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Abstract.—The families Ochteridae and Hebridae are recorded for the first time from the granitic Seychelles, based on collections from mountain streams on the island of Mahe. Two new species, *Ochterus seychellensis* and *Hebrus seychellensis*, are described, with dorsal habitus and male genitalic figures.

The aquatic Heteroptera fauna of the granitic Seychelles is of interest from a biogeographical standpoint, since it is hypothesized that these oceanic granitic islands represent small continental fragments stranded in the wake of drifting India (Davies, 1968). Up to the present time the fauna has appeared to be relatively similar to that occurring on the high islands of the Mascarenes, consisting primarily of vagile, widespread species of common occurrence throughout the western Indian Ocean basin. Several recent discoveries, however, have revealed that the granitic Seychelles do in fact harbor a significantly richer fauna than the Mascarenes, including the unusual mesoveliid genus *Phrynovelia* (Andersen, in press) and two species of the genus *Rhagovelia* (J. Polhemus, 1990). To these discoveries may now be added two new species belonging to the families Ochteridae and Hebridae, which were previously unknown from any of the high Indian Ocean islands between Madagascar and Ceylon. The relationships of these new species have yet to be resolved, since the genera *Ochterus* and *Hebrus* to which they belong are both large and in need of revision in the Eastern Hemisphere, but their presence indicates that the granitic Seychelles may indeed harbor the remnants of an old continental aquatic Heteroptera fauna that was fragmented by vicariance events during the breakup of the Gondwana supercontinent.

The collections on which the new taxa in this paper are based were made by the author during his participation in the Smithsonian Institution's Aldabra Program and were undertaken in cooperation with the Seychelles Islands Foundation. The holotypes are deposited in the collections of the National Museum of Natural History, Washington, D.C. (USNM); paratypes are also deposited in the J. T. Polhemus collection, Englewood, Colorado (JTPC). All measurements are given in millimeters. The CL numbers following locality data refer to codes used by the author to reference ecological notes.

***Ochterus seychellensis*, new species**

Diagnosis. This species may be separated from any other *Ochterus* presently described from India, Ceylon, Africa or Madagascar by the following combination of characters: the rostrum exceeds the hind coxae; the clavus and corium are smooth,

without deep punctations; the hemelytra lack gold scale-like setae; and the embolium is only weakly punctate. The absence of punctations on the distal part of the inner corium is a character state not seen in any other Old World species.

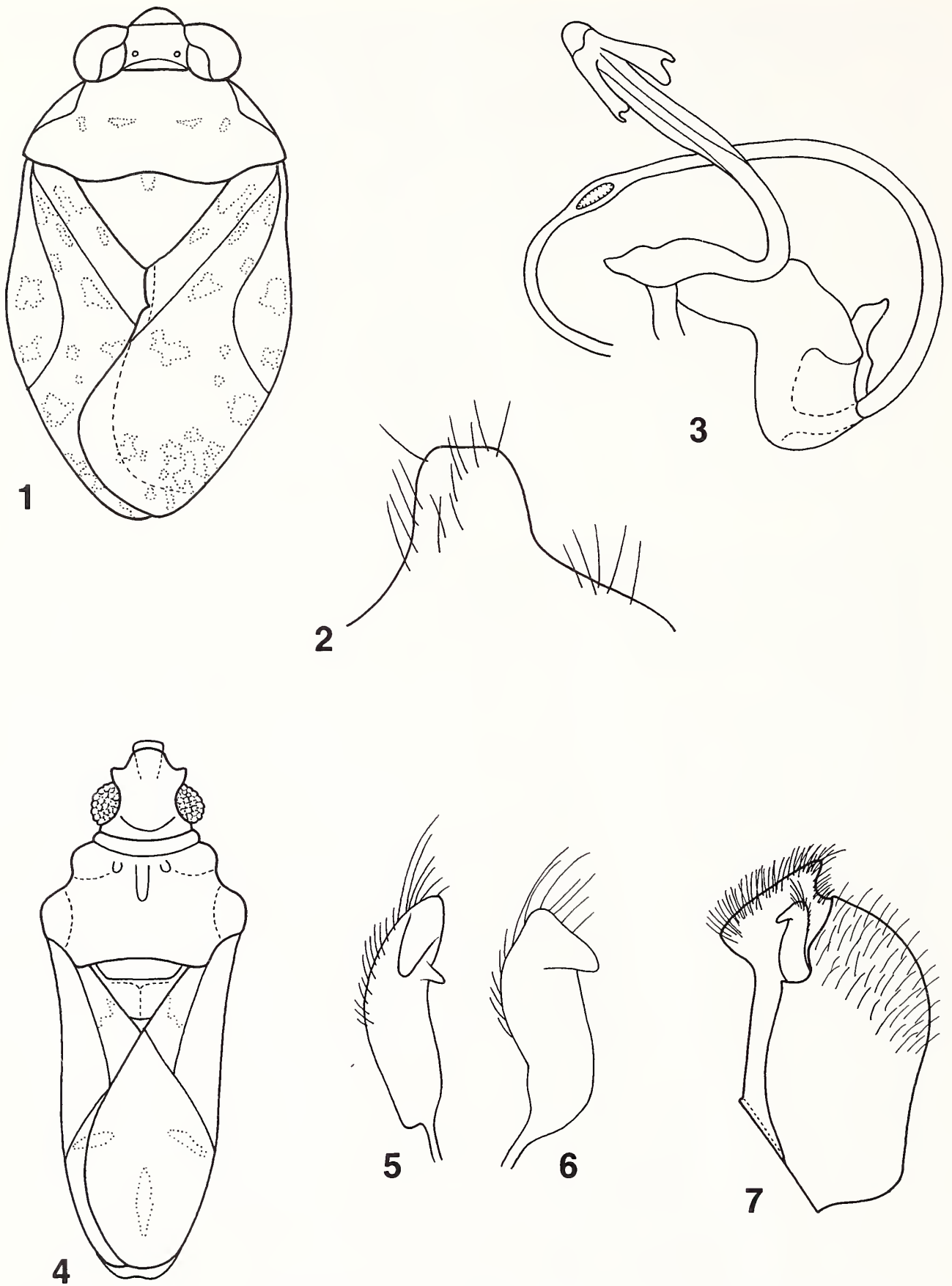
Description. Male: general form broadly ovate, body length 4.31 mm; maximum width 2.42 mm (Fig. 1). General coloration dark velvety green, with scattered pruinose lavender markings as follows: narrow linear patches at base of ocular flanges and along anterior pronotal margin adjoining vertex; four small irregular patches arranged transversely between anterior and posterior lobes of pronotum; single small triangular patch medially along anterior margin of scutellum; broad irregular patches basally on each half of clavus and corium; two large roughly circular patches on each embolium; 5 to 6 irregular patches of varying size on each half of central corium; irregular network of partially interconnected patches on wing membrane. Head shining black; anterior margin of clypeus, anterolateral and posterior margins of pronotum, anterolateral margin of embolium, rostrum, legs and abdominal venter dark yellow; antennal segments I and II pale yellow, segments III and IV pale brown; thoracic venter dull pruinose black; hind tibiae spotted with black at bases of stout erect spines.

Head glabrous, length (along midline as measured from directly above)/width (across eyes) = 0.39/1.34, angled downward at 45° when viewed laterally; vertex with numerous striae; eyes large, protruding, projecting posteriorly behind vertex; antennae with segments I and II short, globose, segments III and IV slender, filiform, lengths of segments I–IV = 0.11, 0.11, 0.28, 0.31; rostrum long, length = 2.58, exceeding hind coxae and extending onto base of abdominal venter.

Pronotum length (midline)/width = 1.06/2.21, bearing numerous small glabrous punctations, lacking evident setae; anterior collar prominent, flat; anterolateral margins explanate, well demarcated from disk; calli weakly tumescent; posterior margin multisinuate, posteriorly concave centrally above base of scutellum. Scutellum triangular, length/width = 0.73/1.34, weakly tumescent, bearing numerous small glabrous punctations centrally plus a double row of slightly larger, more closely spaced punctations along lateral margins, lacking evident setae. Hemelytra long, attaining tip of abdomen, corium, clavus and embolium well defined, surfaces smooth, sparsely set with very tiny gold setae, lacking evident punctations except for a few very tiny punctations on embolium; anterolateral embolar margin explanate; length of clavus along outside margin = 1.79; membrane venation evident, defining 7 closed cells.

Ventral surface of thorax smooth and pruinose, lacking setae, bearing scattered punctations on pro-, meso-, and metaepisterna; abdominal venter covered with very short fine appressed gold setae, this setal covering interrupted by ovate glabrous patches surrounding spiracles laterally on paratergites. Leg segments covered with short, fine, recumbent gold setae; anterior and middle tibiae bearing numerous short bristly gold setae, these setae becoming more numerous distally; fore and middle tibiae with a few longer semi-erect spinelike setae on posterior margins; hind tibia with double longitudinal row of large erect gold spines; all tibiae with transverse rows of spines at distal ends; claws gold, gently curving, arolia long, exceeding length of claws when viewed laterally.

Genital segment well retracted into abdomen; subgenital plate with V-shaped indentation medially on posterior margin. Pygophore quadrate, apex transverse, lateral lobes well removed from apex (Fig. 2). Right paramere with head of moderate height,



Figs. 1–3. *Ochterus seychellensis*, n. sp. 1. Male, dorsal habitus (legs omitted). Locations of pruinose lavender patches defined by stippling. 2. Male pygophore, caudal tip. 3. Male genital complex.

Figs. 4–7. *Hebrus seychellensis*, n. sp. 4. Male, dorsal habitus (legs omitted). Locations of white markings on hemelytra defined by stippling. 5. Male right paramere, top view. 6. Male right paramere, lateral view. 7. Male genital capsule, left lateral view.

evenly domed and convex; appendices moderately long, apices indented; shaft stout, broadened distally (Fig. 3).

Female: Similar to male in general structure and coloration but slightly smaller, body length 4.06, width 2.35.

Discussion. *O. seychellensis* n. sp. is immediately separable from the widespread *O. marginatus* occurring on India and Ceylon, which possesses numerous punctations on the clavus and corium, and alternating brown and yellow spots on the margins of the hemelytra, and from the somewhat similar *O. minor* from Africa, which also has punctate hemelytra and dark yellow spots along the wing margins, a yellowish area centrally on the posterior margin of the pronotum, and a shorter rostrum that does not exceed the hind coxae. *O. seychellensis* n. sp. is also separable from the south and east African *O. caffer*, which is much larger, has punctate hemelytra and a short rostrum which does not exceed the hind coxae, and lacks the bluish pruinosity at the base of the clavus.

The general habitus and smooth hemelytra of *O. seychellensis* n. sp. are reminiscent of a group of Neotropical ochterids which also occur on vertical rock faces, but these resemblances appear to be due to convergence rather than monophyly, since the New World species have a very different male genitalic plan.

Etymology. The name "seychellensis" refers to the Seychelles islands.

Habitat data. The type series was taken from a wet vertical rock wall along the Foret Noire road near the Congo Rouge trailhead; this is close to the highest point that can be reached by road on the island of Mahe. The rock face was formed by the road cut, with disturbed secondary rain forest immediately above it. A shallow flow of water trickled down across the face, collecting in a narrow concrete channel at its base. The face itself was irregular and covered with alternating patches of moss and open wet rock, and the ochterids moved across it with great agility, being quick to fly if pursued or otherwise disturbed. To slow their movements a small amount of pyrethrin insecticide was sprayed on the rock face; this application resulted in the appearance of many previously undetected ochterids which had apparently been secreted amid the moss or in cracks in the rock. This treatment also resulted in the appearance of an undescribed species of *Phrynovelia* (Andersen, in press) which appears to share the rock face habitat with *O. seychellensis*. Another single specimen of *O. seychellensis* was taken along the upper Riviere Grande Bois on the opposite side of the road from the rock face, and several other individuals were seen along this stream. All were on shaded mossy rock walls and overhangs near the water, and were once again very fast and difficult to catch.

On the basis of these observations *O. seychellensis* seems to be confined to vertical wet rock faces, a preference quite distinct from that of many other Old World ochterids which more typically occupy sandy horizontal substrates adjacent to streams and ponds. It seems likely that this species is probably more widespread on Mahe than the present records indicate, but that its obscure habitat and difficulty of capture have precluded its collection.

Holotype. Male: SEYCHELLES, Mahe, seeping rock faces along Foret Noire road near Congo Rouge trailhead, 390 m, 3 April 1989, CL 8047, D. A. Polhemus (USNM).

Paratypes. SEYCHELLES, Mahe: 15 ♂♂, 22 ♀♀, same data as holotype (USNM, JTPC); 1 ♂, headwaters of Riviere Grande Bois, along Foret Noire road near Congo Rouge trailhead, 420 m, water temp. 22.5°C., 3 March 1989, CL 8016, D. A. Pol-

hemus (USNM); 1 ♂, Riviere Grand Bois, 6.2.74, F/Sey/4., F. Starmühlner (JTPC).

Additional specimens not paratypes. SEYCHELLES, Mahe: 18 immatures (stored in alcohol), same data as holotype (USNM).

***Hebrus seychellensis*, new species**

Diagnosis. This species may be separated from other *Hebrus* presently known in Africa, Madagascar and India by the following characters: the large keeled triangular male proctiger thickly set with erect curving setae (Fig. 7); the distinctive male paramere shape with a spur on the inner face (Figs. 5, 6); the bowed hind femur; the unmodified hind tibia; the shape of the posterior margin of the bucculae; the setose areas distally on the anterior and middle tibiae; the tumescent abdominal ventrite VI in females; and the pattern of white markings on the hemelytra (Fig. 4).

Description. Macropterous male: elongate, body length/width (across humeri) = 2.02/0.77. Ground color dark brown; eyes reddish brown; rostrum dark yellow; lateral portions of anterior lobe of pronotum dark brown; hemelytra dark blackish brown with white patches basally on clavus to either side of scutellum, membrane fumate, with 3 elongate white streaks posteriorly (Fig. 4); legs dark yellow brown, becoming more infuscated on distal portions of femora and tibiae; venter of thorax medium brown, venter of abdomen black.

Head long, declivant anteriorly, length (as measured from directly above)/width (across eyes) = 0.40/0.43, width across antennal tubercles = 0.32; vertex lacking a median sulcus. Eyes moderately large, exserted, globose, coarsely faceted; ocellar pit located mesad of posterior portion of eye; ocelli of moderate size, evident, eye width/interocular space = 0.09/0.24. Antennae long, slender, lengths of segments I–IV = 0.29, 0.20, 0.45, 0.27; segments I and II stoutest, of similar diameter, bearing short pale recumbent setae, segments III and IV more slender, bearing longer erect pale setae whose lengths exceed the segment diameters. Rostrum long, length = 0.88, extending past hind coxae and onto base of abdomen. Bucculae long, prominent, bearing 5 foveae, with 2 large foveae along dorsal margin adjoining gula and 3 smaller foveae evenly spaced around the posterior buccular margin.

Pronotum long, length/width (across humeri) = 0.50/0.79, weakly constricted medially, bearing median longitudinal sulcus. Anterior lobe with 2 (1+1) deep pits to either side of longitudinal midline, anterior margin with prominent collar. Posterior lobe tumid, raised above anterior lobe, lacking significant pits or depressions posteriorly, humeri prominent. Scutellum length/width = 0.22/0.41; mesoscutellum short, raised, length 0.05; metanotum moderately long, length/width = 0.16/0.29, with weak longitudinal median carina, posterior margin raised to form a horizontal lip.

Hemelytra complete, attaining tip of abdomen; costal margin and corium thickened, set with numerous fine recumbent gold setae.

Legs moderately stout, straight, all segments covered with short semi-recumbent gold setae, fore and middle tibiae with thicker patches of setae distally on ventral faces; proportions of leg segments as follows: fore femur/tibia/tarsal 1/tarsal 2 = 1.10, 1.06, 0.80, 0.31; middle femur/tibia/tarsal 1/tarsal 2 = 1.06, 1.02, 0.08, 0.27; hind femur/tibia/tarsal 1/tarsal 2 = 1.33, 1.57, 0.08, 0.47.

Venter of thorax weakly pruinose, sparsely set with short gold setae; abdominal venter shining, more thickly covered with short recumbent gold setae, central portion

of ventrite VI glabrous and broadly but distinctly tumescent, this tumescence most evident when viewed laterally.

Genital segment of moderate size, mostly retracted into abdomen; proctiger triangular, bearing an anteromedial keel-like structure thickly set with erect curving setae (Fig. 7); parameres symmetrical, hooked at tips with spur on inner face, shape as in Figures 5, 6.

Macropterous female: similar to macropterous male in general structure and coloration but slightly larger. Body length 2.15 mm, width (across humeri) 0.86 mm.

Discussion. The genus *Hebrus* is in serious need of revision in the Old World, and the number of species in Africa, Madagascar and tropical Asia is so large that individual comparisons with *H. seychellensis* n. sp. would be impractical. The characters given in the diagnosis and the geographical provenience should, however, be sufficient to allow easy recognition of this species.

Etymology. The name "seychellensis" refers to the Seychelles islands.

Habitat data. The type series was taken along the Riviere Grande Saint Louis above the Le Niol water intake, a clear rocky stream coming down out of a disturbed primary rain forest catchment. The insects were very uncommon, and were found only on the dark undersides of large midstream rocks which projected out over the flowing water.

Holotype. Macropterous male: SEYCHELLES, Mahe, Riviere Grande St. Louis above Le Niol water intake, 330 m, water temp. 22.5°C., 2 April 1989, CL 8046, D. A. Polhemus (USNM).

Paratypes. 1 macropterous ♂, 1 macropterous ♀, same data as holotype (USNM, JTPC).

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